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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,769	03/03/2004	Kazunori Yamanaka	040094	3203
23850	7590	05/30/2006	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP			CAO, HUEDUNG X	
1725 K STREET, NW				
SUITE 1000			ART UNIT	
WASHINGTON, DC 20006			2821	
			PAPER NUMBER	

DATE MAILED: 05/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/790,769

Applicant(s)

YAMANAKA ET AL.

Examiner

Huedung X. Cao

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-9 and 11-13 is/are rejected.
7) ☐ Claim(s) 10 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 03 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted Prior Art (Specification, page 1-3) in view of Tsai et al. (US 2004/0100410 A1).

As per claim 1, Prior Art teaches an antenna coupling module comprised of a planar antenna and a substrate forming a planar superconductive high frequency circuit arranged in a perpendicular direction with respect to the element surface of said planar antenna and having said planar antenna (Specification, page 1, line 32-page 2, line 30). It is noted that Prior art does not explicitly disclose that said planar antenna and said superconductive high frequency circuit electromagnetically coupled via a space. However, Tsai teaches such electromagnetically coupling via a space is well known in the art see Tsai's claim 3. It would have been obvious to one of ordinary skill in the art at the time the invention was made by having said planar antenna and said superconductive high frequency circuit electromagnetically coupled via a space because without the through hole there're will be no disrupt structural integrity of material.

Claim 2 adds into claim 1, wherein the perpendicular distance of the electromagnetically coupled space has a length of not more than $1/4$ of the effective wavelength which Prior art does not explicitly disclose. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that various length of electromagnetically coupled space can be used depending upon the desired application in order to improve and strength a performance of the antenna.

Claim 3 adds into claim 2, wherein said effective wavelength includes from a microwave to a milliwave band (Specification, page 2, lines 31-36).

Claim 4 adds into claim 1, wherein said planar antenna and said superconductive high frequency circuit have a $1/4$ wavelength type feeder line, respectively as a coupling circuit thereof (Specification, page 3, lines 25-32).

Claim 5 adds into claim 4, wherein a dielectric body is arranged between $1/4$ feeder lines for coupling circuit of said planar antenna and said superconductive high frequency circuit (Specification, page 3, lines 25-32).

Claim 6 adds into claim 5, wherein at least one type of ingredient selected from the group consisting of magnesium oxide, mullite, forsterite, titanium oxide, lanthanum aluminate, sapphire, alumina, strontium titanate, magnesium titanate, calcium titanate, quartz glass, polytetrafluoro-ethylene, polyethylene, a polyimide, polymethylmethacrylate, a glass-epoxy composite, and a glass-polytetrafluoroethylene composite is used as the ingredient of the dielectric body (Specification, page 3, lines 4-8).

Claim 7 adds into claim 1, wherein an oxide superconductor is used as the conductor of said superconductive high frequency circuit, and said superconductive high

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frequency circuit has at least one type of circuit selected from the group comprised of a phase circuit, filter circuit, through line, delay circuit, coupler, distribution circuit, and composite circuit (Specification, page 2, lines 7-19, and lines 19-25).

Claim 8 adds into claim 1, wherein said planar antenna has at least one type of antenna element of the dipole type, patch type, and log-periodic type (Specification, page 2, lines 7-10).

Claim 9 adds into claim 1, wherein an oxide superconductor is used as the conductor for said planar antenna (Specification, page 2, lines 19-25).

Claim 11 adds into claim 8, wherein said planar antenna is a non-superconductive element which Prior art does not explicitly disclose. However, it is inherent that the planar antenna is made out with non-superconductive element for different kind of antenna system.

Claim 13 is similar in scope to claim 1; therefore, it is rejected for the same reason.

3. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted Prior Art (Specification, page 1-3) in view of Shen (High temperature superconducting microwave circuits).

Claim 12 adds into claim 1, wherein said superconductive high frequency circuit or said planar antenna is cooled to not more than 100K which Prior art does not teach. However, Shen teaches the superconductive high frequency circuit or the planar antenna is cooled to not more than 100K is well known in the art (Shen, pages 104-

105). It would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of teaching of Shen to configure Prior art's antenna system as claimed, doing so it would help to get the desired frequency needed.

Allowable Subject Matter

4. Claims 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments filed on 03/09/2006 have been fully considered but they are not persuasive.

Applicant's arguments are addressed in the office action above.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiries

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan, can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

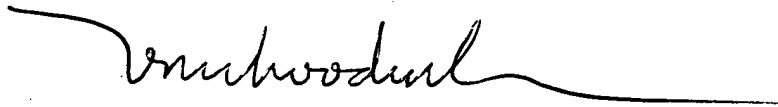
8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRINH DINH
PRIMARY EXAMINER

Huedung Cao
Patent Examiner

A handwritten signature in black ink, appearing to read 'Trinh Dinh', with a long horizontal flourish extending to the right.